

Durgapur Barrage as a Waterbird Habitat

BY

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(*With a map*)

The paper summarises two years observations made in the vicinity of the Durgapur barrage in West Bengal and indicates the importance of this development in providing a waterbird habitat. The area is described and significant variations in the weather during the period are given. Observations are listed of those species which depend wholly or partly on a wetland habitat, and their status given.

GENERAL

When there is so much decrease in wild life due to habitat destruction it is pleasant to record a man-made development that can be shown to be of definite benefit.

In 1955, as part of the development of the Damodar River in W. Bengal and Bihar, a barrage was put across the Damodar at Durgapur for flood control and irrigation purposes. The reservoir so formed also supplies water to the heavy industry development on the north bank. It is located in Burdwan district about 170 km. (110 miles) north west of Calcutta.

DESCRIPTION

The shallow lake formed upstream is about 1.5 km. (1 mile) wide and 3 to 4 km. (2-2.5 miles) long. Due to siltation a large number of islands have formed which have become covered with a dense growth of reeds (*Phragmites*), rushes (*Juncus*) etc. with broad fringes of Water Hyacinth (*Eichhornia crassipes*). Some of the islands are of considerable size (several hectares) and are continuing to grow and new ones appear gradually. One large island adjacent to the south bank supports a small colony of reed cutter's huts, the occupants cutting the reeds for thatch. Cows are also grazed on it. While this activity makes a very small reduction in the total area of reed-bed available for nesting, it provides a feeding area for storks, egrets, plovers, sripe etc. The water level of the lake is kept almost constant throughout the year, varying by about only 50 to 75 cm. (20-30 in.).

An area of c. 13 ha. (c. 30 acres) enclosed by the south bank efflux bund is used as a fish farm by the state government. The water in the fish farm is clear as distinct from the heavily silt laden river water and its level is more dependent on rainfall.

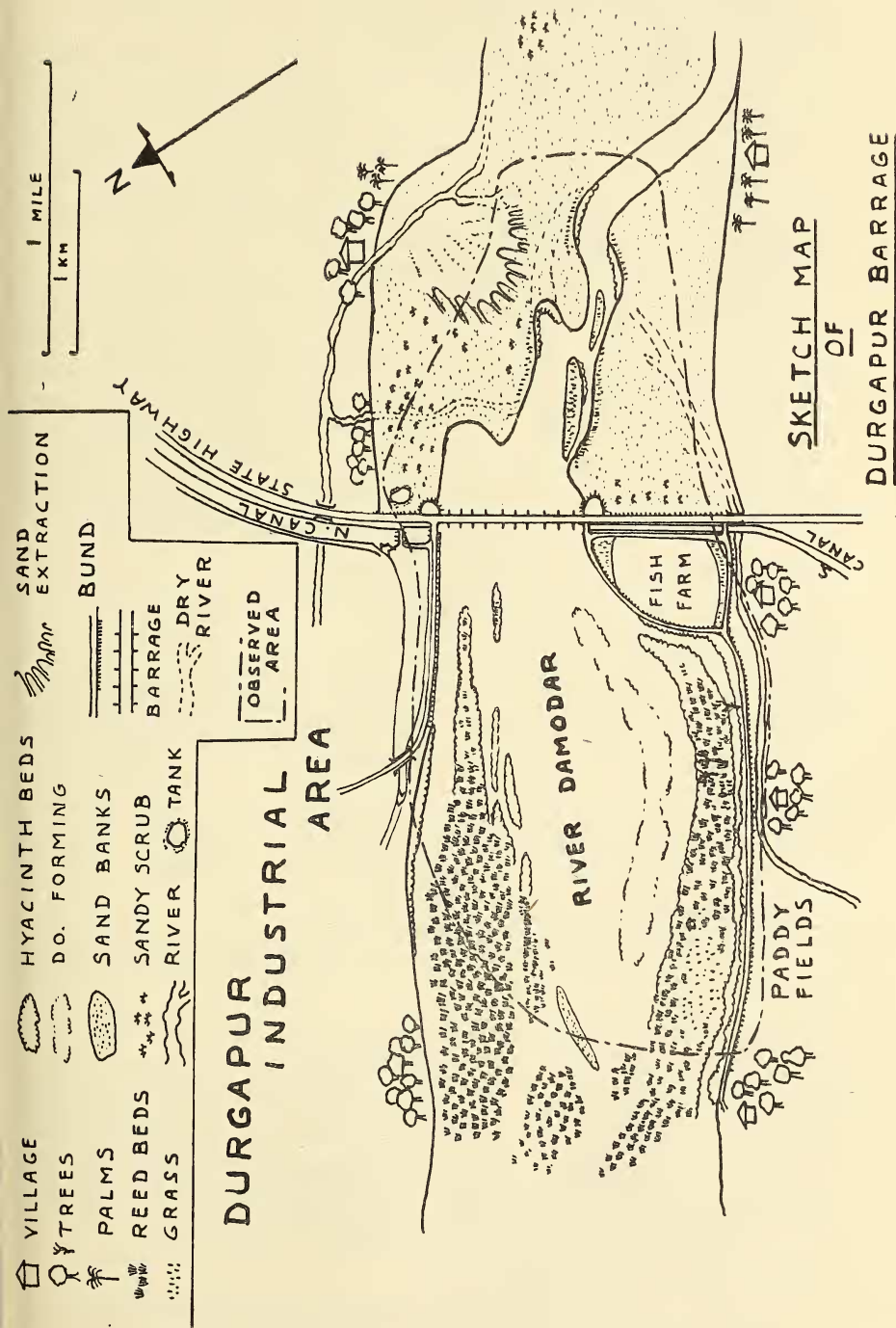
The river bed downstream of the barrage is similar to many of the larger rivers of the N. Indian plains. In the dry season there is a wide expanse of sand through which there is a shallow sluggish flow of water that becomes a raging torrent during the monsoon. However, even during the dry season, some water passes through, bringing with it silt and water plants which produce a rich growth along the water's edge providing a good feeding ground for waders. Occasionally the water level rises due to excess discharge following thunderstorms and as the water level recedes the large areas of wet sand also provide suitable wader feeding ground. During such flashes, large quantities of water hyacinth become stranded at high water mark which slowly rot providing a flourishing breeding ground for insects which attract wagtails, pipits, larks and other insectivorous species.

Sand has been commercially extracted from the sand banks in an area near the north bank, permitting water to seep to the surface giving rise to a growth of short grasses and low plants thus further diversifying the habitat.

Observations began in March 1968 and the present paper summarises two years' activity, which is continuing. The area has been visited two or three times each month except August-October 1969 when the observer was on home leave. Most observations on the upstream side have been made in the afternoon from the south bank bund road which extends further along the river than that on the north. As the river flows from WNW to ESE the light is also better for observations made from this direction. The island with grazing area mentioned above was also readily observed from the south bank. Visits to the downstream side were usually made in the morning and observations made from the water's edge. The area covered downstream extended about 1.5 km. (1 mile) from the barrage.

The fluctuations in bird numbers cannot be considered in isolation from the variations in the weather. March 1968 was in the middle of an unusually dry spell following the poor monsoon of 1967. The 1968 wet season began at the end of May and continued till the beginning of October giving the wettest monsoon in West Bengal for 50 years with rainfall 50% above normal (press report). The following dry season also had excessive rainfall and maximum temperatures were lower than the previous year. The 1969 monsoon began a few days early at the beginning of June but petered out after a few days to return a month later in more normal strength.

The attitude of the Damodar Valley Corporation, the authority



responsible for the barrage and its storage lake, is encouraging from the conservation point of view. Bathing, fishing and shooting are prohibited on the lake and a sanctuary has thereby been created in effect if not in name. It would be gratifying if this state of affairs could be given official recognition so that the immense wealth of bird life which has been created could be considered from the conservation aspect if any changes or developments take place in the future. There can be few places in India, or anywhere else, where 10,000 ducks can be easily seen from a state highway against a backdrop of factory chimneys.

The only disturbance to which birds on the lake are subject are a few villagers fishing in country boats, but neither birds nor men take a great deal of notice of each other. The only imminent threat would be a large scale take over of the islands for agricultural purposes but it seems unlikely that the authorities would tolerate this. There was a press report towards the end of 1969 about the amount of siltation that had taken place and there was a scheme to drain and dredge the lake to restore its storage capacity but no action has been taken so far. Such action would of course mean the loss of breeding habitat for the resident birds.

Podiceps cristatus (Linnaeus) Great crested Grebe

A single record of 2 birds on 8.ii.69.

Podiceps ruficollis (Pallas) Little Grebe

Present throughout the year in varying numbers. A small resident population augmented by a winter influx with a further increase in times of drought elsewhere. Largest flock of about 100 on 11.v.68.

Phalacrocorax fuscicollis Stephens Indian Shag

Possibly overlooked amongst the flocks of the next species, and if so more numerous than the single record on 18.v.68 suggests.

Phalacrocorax niger (Vieillot) Little Cormorant

A common resident, usually between about 10 and 50 but a maximum of 150 on 2.ii.69.

Anhinga rufa (Daudin) Darter

Two or three birds present on almost every visit between March and Nov. 1968 with a juvenile on 25 August indicating possible breeding. However, the only subsequent record was a single bird on 24.v.69. There are two possible reasons for the birds' departure: firstly that the water had become too shallow, and secondly, that the birds have been actively discouraged from the fish farm which was their favourite haunt.

Ardea cinerea Linnæus Grey Heron

Probably resident but not recorded during May-August. Maximum of 10 on 18.i.69 and 12 on 1.ii.70.

***Ardea purpurea* Linnæus** Purple Heron

Probably resident but not recorded during July-Nov. six or 7 was the largest number seen in one day (22.vi.68) but actual numbers are likely to be considerably higher. It is quite possible that both this and the preceding species disperse to the surrounding paddy fields during and after the monsoon.

***Butorides striatus* (Linnæus)** Little Green Heron

Status uncertain. This nocturnal species has been seen in the late afternoon on 5 occasions between Jan. and April, always on or near the piers of the barrage itself.

***Ardeola grayii* (Sykes)** Pond Heron

Very common resident but the total numbers are difficult to estimate and must be several hundred.

***Bubulcus ibis* (Linnæus)** Cattle Egret

Common resident but less aquatic than other herons and egrets. Usually between 50 and 100 in the area.

***Egretta alba* (Linnæus)** Large Egret

Resident. The determination of the actual and relative status of this and the two following species is difficult because it is impossible to count all the egrets in the area at one time and not easy to distinguish between them at long ranges. There are estimated to be 8 or 10 of the present species.

***Egretta intermedia* (Wagler)** Smaller Egret

Resident. About twice as numerous as the previous species.

***Egretta garzetta* (Linnæus)** Little Egret

Very common resident always present in large numbers, probably between 250 and 300.

***Nycticorax nycticorax* (Linnæus)** Night Heron

The status of this species is rather puzzling. Apparently absent for most of the year, it suddenly appears in some numbers (50+) just before and during the monsoon. Recorded from May to August, once April.

***Ixobrychus cinnamomeus* (Gmelin)** Chestnut Bittern

Observed only when active during the monsoon from June to August. At least 6, probably many more in the inaccessible areas.

***Ixobrychus sinensis* (Gmelin)** Yellow Bittern

As above, but at least 12 from April to August.

Dupetor flavicollis (Latham) Black Bittern

This allegedly shy species is also quite active during the monsoon, flying about over the reed beds and visiting nearby paddy fields. Never more than one seen at a time, from May to August.

Ibis leucocephalus (Pennant) Painted Stork

A single immature bird on 17-iii-68 is the only record.

Anastomus oscitans (Boddaert) Openbill Stork

An irregular visitor, occurring in any month in numbers up to 30. (This number has been greatly exceeded just after the scope of the present review ended).

Leptoptilos javanicus (Horsfield) Lesser Adjutant

A single bird settled on the sandbanks on 23-ii-69. The locality and habitat might indicate that the bird was actually *L. dubius*, but I saw both species in Assam a week later where *javanicus* was much commoner, and in fact was the common stork of the area and I am satisfied that the present designation is correct.

Threskiornis melanocephala (Latham) White Ibis

Scarce monsoon visitor. Two records for June and July.

Anser indicus (Latham) Barheaded Goose

Four birds flying up-river on 17-iii-68.

Dendrocygna javanica (Horsfield) Lesser Whistling Teal

Resident, probably breeding in small numbers, but with large winter influx reaching a peak of about 2,000 on 22-ii-70. It is possible that the Large Whistling Teal *D. bicolor* is also present among the flocks of the smaller species but none have been identified for certain.

Tadorna ferruginea (Pallas) Ruddy Sheld-duck

Common winter visitor with flocks up to 25 on the lake or the sand banks, but 82 on the lake on 11-i-69 was exceptional.

Anas acuta Linnæus Pintail

Winter visitor in huge numbers, outnumbering all other duck together between Dec. and Feb. A few also in Nov. and March, latest 3 on 19-iv-68. Peak numbers were 8,000 on 8-15-ii-69 and an incredible 12,000 to 15,000 on 1-ii-70. These large flock appear to be birds gathering prior to departure because numbers drop rapidly afterwards.

Anas crecca Linnæus Teal

Common winter visitor, up to 500 from Nov. to March.

Anas platyrhynchos Linnæus Mallard

Four birds on 23-xi-69 is the only record.

Anas strepera Linnæus Gadwall

Regular winter visitor in small numbers, sometimes up to 200. Nov. to March.

Anas penelope Linnæus Wigeon

Winter visitor from Dec. to March, maximum 25.

Anas querquedula Linnæus Garganey

Common winter visitor from Nov. to March, most numerous in Feb. to March with maximum of 500 on 15-ii-69.

Anas clypeata Linnæus Shoveller

Regular winter visitor, in numbers up to 60 from Jan. to March.

Netta rufina (Pallas) Redcrested Pochard

Three winter records of up to 12 birds in Dec. and Jan.

Aythya ferina (Linnæus) Pochard

Irregular winter visitor with 4 records of up to 20 birds from Dec. to March.

Aythya fuligula (Linnæus) Tufted Duck

Regular winter visitor from Nov. to April, maximum numbers in March, 100 in 1969, 200 in 1970. One record for 1 bird on 2-vi-68.

Aythya nyroca (Güldenstädt) White-eyed Pochard

Only 2 records, 1 bird on 31-iii-68 and 2 on 15-ii-69. Possibly overlooked amongst female Tufted Duck.

Nettapus coromandelianus (Gmelin) Cotton Teal

Resident, probably breeding in some numbers. Winter flocks of up to 150.

Sarkidiornis melanotos (Pennant) Comb Duck

Not recorded until 11-i-69 but regular from Dec. to April since. Maximum of 70 on 15-ii-69.

Haliastur indus (Boddaert) Brahminy Kite

Irregular visitor at any time of the year. Normally only one bird at a time.

Circus macrourus (S. G. Gmelin) or **C. pygargus** (Linnæus) Pallid Harrier or Montagu's Harrier

A female or immature, a very slender bird hunting over a reed bed. From shape and habitat I am inclined to feel the bird was Montagu's but this would be my only record for W. Bengal, whereas the Pallid Harrier is quite common in winter over dry paddy fields. Seen on 14-xii-68.

Circus melanoleucos (Pennant) Pied Harrier

Six records between Nov. and March.

Circus aeruginosus (Linnæus) Marsh Harrier

Seen very regularly in every month except May-July, usually 2 birds. Very useful as a 'beater' because a harrier passing over a reed bed causes all the otherwise hidden occupants to take flight.

Pandion haliaetus (Linnæus) Osprey

Almost permanent resident, recorded on every visit in 1968 with 2 on 25th August. Frequent, but a little less regular since.

Amaurornis phoenicurus (Pennant) Whitebreasted Waterhen

The comparatively few records of this species must give a false impression of its status. Seen only from March to August. A family party with newly hatched chicks on 25-viii-69.

Gallicrex cinerea (Gmelin) Watercock

Becomes quite active just before and during the monsoon, from May to August, flying about over the reed beds and visiting paddy fields. At least 2 birds, but probably many more in the inaccessible islands.

Gallinula chloropus (Linnæus) Moorhen

Apparently only present from March to August. Up to 7 on one occasion but this can only be a minimum.

Porphyrio porphyrio (Linnæus) Purple Moorhen

Probably resident but seen only when active just before and during the monsoon, from March to August. 7 or 8 at once on the grazing island, probably more elsewhere.

Fulica atra (Linnæus) Coot

Apart from a single bird on 2-vi-68, a small wintering flock of about twelve birds, from Dec. to February.

Hydrophasianus chirurgus (Scopoli) Pheasant-tailed Jaçana

Common in every month except Sept.-Nov. (However, my visits were least frequent at this time), probably breeding in numbers. Flocks of 100 or more in breeding plumage in March.

Metopidius indicus (Latham) Bronzewinged Jaçana

Less numerous but more consistent than the preceding species on the whole. At least 20 pairs, probably many more, seem likely to breed. Recorded in every month except Sept. and Oct. Maximum 50-60 in March.

Vanellus indicus (Boddaert) Redwattled Lapwing

Several pairs present, probably breeding judging by their mobbing behaviour, between Feb. and Oct. Apparently disperses during the cold weather.

Pluvialis squatarola (Linnæus) Grey Plover

One bird on a sand bank just below the barrage on 24-iii-68. (A second record of 1 on some fallow land a few km. away in Bankura district in the period under review may indicate the species is less uncommon on passage inland than is generally supposed).

Pluvialis dominica (P.L.S. Müller) Lesser (or Eastern) Golden Plover

Regular winter flock of about 50 from Dec. to April.

Charadrius hiaticula (Linnæus) or **C. placidus** J. E. & G. R. Gray Ringed Plover or Longbilled Ringed Plover

A typical 'ringed' plover on 16-iii-69 showing a conspicuous wing bar in flight was one species or the other. From their relative status in India as a whole the Longbilled Ringed Plover is the much more likely of the two.

Charadrius dubius Scopoli Little Ringed Plover

Ten to twelve birds on the sand banks from Sept. to April, probably breeding.

Charadrius alexandrinus Linnæus Kentish Plover

Up to 40 from Sept. to April. A few pairs may breed.

Charadrius mongolus Pallas Lesser Sand Plover

Single birds on 7-ix-68, 6-xii-69 and 3-i-70. Possibly overlooked amongst flocks of Kentish Plover.

Numenius phaeopus (Linnaeus) Whimbrel or **N. arquata** (Linnæus) Curlew

Records of 1 and 6 flying over, heading SE, on 4th and 15th August 1968. I thought they were Whimbrel from the shape of the bill, (not a very reliable feature), but Curlew is more likely.

Tringa erythropus (Pallas) Spotted Redshank

Common winter visitor from Jan. to April, maximum 40. Contrary to the statement in Ali & Ripley (1968) it is not less numerous than Redshank *T. totanus*, the latter has not been recorded here, or anywhere in W. Bengal by me.

Tringa stagnatilis (Bechstein) Marsh Sandpiper

Probably regular winter visitor in small numbers. 8 records Sept. to March, maximum 6.

Tringa nebularia (Gunnerus) Greenshank

One of the most regular and consistent of winter visitors between Sept. and April, up to 20. (The similarity of Armstrong's Sandpiper *T. guttifer* has been known for the last winter of the review only but none have been identified despite close attention to all Greenshanks).

Tringa ochropus Linnæus Green Sandpiper

Common winter visitor in small numbers from Sept. to April. The total number of individuals and small groups hard to assess, but probably about 20.

Tringa glareola (Linnæus) Wood Sandpiper

Much more numerous than either the previous or next species. From Sept. to March, usually 20-30, sometimes up to 100.

Tringa hypoleucos (Linnæus) Common Sandpiper

Five or six individuals regularly from Sept. to March.

Capella gallinago (Linnæus) Fantail Snipe

Possibly resident, 1 record May, 2 in August. Regular from Nov. to March, maximum 15. All snipe have been assumed to be this species but the possibility of Swinhoe's Snipe *C. megala* and Pintail Snipe *C. stenura* also occurring cannot be ruled out. The only differences so far as is known is the number of tail feathers which cannot be discerned in the field.

C. minima (Brünnich) Jack Snipe

One on 3-i-70.

Calidris canutus (Linnæus) Knot

A single bird on 3-i-70 was the most surprising record of all because the species has only two previous records in the sub-continent, one in West Pakistan and one in Ceylon. The greater probability of the bird being an Eastern (or Great) Knot *C. tenuirostris* was considered but that species should be larger than a Lesser Golden Plover, 29 cm. vs. 24-25 cm. whereas a Knot should be about the same size, 25 cm. which this bird was. I am familiar with the species from previous experience in U.K.

Calidris minutus (Leisler) Little Stint

Regular in small flocks mixed with larger numbers of the next species. Most numerous in Feb., return migration?, when up to 100 recorded.

Calidris temminckii (Leisler) Temminck's Stint

Easily the most numerous of the wintering waders. 50 counted along about 400 m. of the water's edge formed only a small proportion

of the total present. Earliest 9 Sept., latest 19 April. Same dates apply to previous species.

Philomachus pugnax (Linnæus) Ruff

Only 2 records on 15 Feb. and 30 March 1969. However the species has been seen more frequently at another locality 19 km. downstream.

Rostratula benghalensis (Linnæus) Painted Snipe

Only 3 records between 30 March and 27 April 1969, in lush water-side vegetation on the downstream side.

Himantopus himantopus (Linnæus) Blackwinged Stilt

A capricious winter visitor depending on water level between Jan. and March. Quite numerous when conditions are right, up to 50.

Glareola lactea Temminck Small Indian Pratincole

Common but erratic in numbers between Dec. and April, maximum 45.

Larus brunnicephalus Jerdon Brownheaded Gull

One flying up river on an unrecorded date in April 1968.

Chlidonias hybrida (Pallas) Whiskered Tern

Common breeding resident, numbers increase in winter up to 60.

Sterna aurantia J. E. Gray Indian River Tern

One or two birds regularly from March to October.

Sterna hirundo Linnæus Common Tern

Three records of up to 6 birds in Nov. and December.

Sterna acuticauda J. E. Gray Blackbellied Tern

Up to 4 birds regularly from Nov. to April, one record in June.

Sterna albifrons Pallas Little Tern

Six records of 1 or 2 birds between March and June.

Cacomantis merulinus (Scopoli) Plaintive Cuckoo

Hardly a species to include in such a paper, but 6 records between Nov. and Jan. of single birds flying to or from the reed beds could indicate that it is a regular winter visitor in this habitat.

Ceryle rudis (Linnæus) Lesser Pied Kingfisher

At least 2, probably 3, pairs present throughout the year.

Alcedo atthis (Linnæus) Common Kingfisher

Only 2 records, in March in different years.

Halcyon smyrnensis (Linnæus) Whitebreasted Kingfisher

At least 2 birds, probably more, resident.

Merops philippinus (Linnæus) Bluetailed Bee-eater

Common summer visitor from March to Oct. Usually 6-10 birds.

Merops orientalis Latham Green Bee-eater

Very common resident in waterside vegetation along the bund roads.

Jynx torquilla Linnæus Wryneck

Once again, hardly a waterbird, but the vegetation and piles of facing stones along the bund road is one of the most regular winter haunts of this species in the Durgapur area. Up to 3 from Nov. to March.

Eremopterix grisea (Scopoli) Ashycrowned Finch-Lark

Present all the year in small numbers. During the monsoon it is found on the bund road.

Calandrella raytal (Blyth) Sand Lark

Common resident of the sand banks during the dry season, Nov. to April. Nest with eggs on 23 March.

Riparia riparia (Linnæus) Collared Sand Martin

One record of 5 or 6 birds on 14-xii-68. Possibly overlooked amongst the next species.

Riparia paludicola (Vieillot) Plain Sand Martin

Regular in small numbers from Sept. to April. A small colony, about 20 holes, was discovered in Feb. 1970 just downstream of the area.

Hirundo rustica Linnæus Swallow

Regular winter visitor from Oct. to May, usually between 20 and 40, and nearly always flying up river in the late afternoon, presumably going to roost in the reed beds. Numbers rise rapidly to reach a peak of about 3,000 in March, gathering on high tension wires across the north bank canal, and then decline equally quickly.

Hirundo smithii Leach Wiretailed Swallow

The only record was of 2 or 3 birds flying round the DVC power station which is within sight of but just outside the area. Date 24-iv-68.

Hirundo fluviicola Blyth Indian Cliff Swallow

Scarce, but probably overlooked, between March and May. Usually from 1-6, but once exceptionally 300 coincident with peak Swallow numbers on 30-iii-69.

Hirundo daurica (Linnæus) Striated Swallow

Four records of 2 to 10 birds between Oct. and March.

Acrocephalus stentoreus (Hemprich & Ehrenberg) Indian Great Reed Warbler

Regular in water-side vegetation between Nov. and March. Probably more numerous than the 8 records indicate.

Erythacus svecicus (Linnæus) Bluethroat

Regular visitor along the bank of the bund road from Dec. to March.

Anthus novaeseelandiae Gmelin Paddyfield Pipit

The Indian Pipit *A. n. rufulus* is the resident form present in small numbers. The large, heavily marked Richards Pipit *A. n. richardi* has occurred twice in March.

Anthus campestris (Linnæus) Tawny Pipit

Two records in Nov. and Dec. of 3 and 1 bird on the sand banks.

Anthus pelopus J. E. Gray Hodgson's Pipit

A single bird on 14-iv-68 showing a distinctly pinkish throat was thought to be this species but the possibility of Redthroated Pipit *A. cervinus* cannot be ruled out.

Motacilla flava Linnæus Yellow Wagtail

Very common winter visitor from Nov. to April. All those identified appeared to be the race *M. f. beema*.

Motacilla citreola Pallas Yellowheaded Wagtail

Very common winter visitor from Dec. to April.

Motacilla caspica (Gmelin) Grey Wagtail

One bird in the barrage sluices on 13-ii-70. May occur more frequently.

Motacilla alba Linnæus Pied Wagtail

Very common winter visitor from Nov. to April in various races. A mixed flock of the three commoner wagtails numbered between 200-300.

Motacilla maderaspatensis Gmelin Large Pied Wagtail

Two birds first seen on 1-ix-68 and fairly regularly since on or around the barrage itself. May be a resident pair.

Ploceus philippinus (Linnæus) Baya

Very common resident, flying to roost in the reed beds in large numbers.

Ploceus benghalensis (Linnæus) Blackthroated Weaver Bird

Probably not always differentiated from the preceding species. A few definite records of a flock of about 30.

Estrilda amandava (Linnæus) Red Munia

Resident flock of about 30 birds.

The foregoing list does not purport to be a comprehensive list of all the birds recorded in the area, but only of those which rely wholly or partly on the habitats of river, sand bank, lake or reed bed which constitute the area covered. In addition to the above most of the common plains species have also been seen in or around the area.

When interpreting the numbers quoted, the difficulties should be realised in trying to give an accurate estimate of those species which do not form compact flocks out in the open. For secretive reed bed species such as bitterns and rails, their exact status and numbers must be largely conjecture.

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